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Haiti: Beauty on Edge

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Background

Haiti, once a jewel in the Caribbean, is now one of the poorest countries in the region. Over the past decades, the country has experienced significant challenges due to lack of infrastructure and poor management. Because of these challenges, we decided to join the Haitian people in an effort to respond to environmental issues by creating a nonprofit organization to assist the Haitian communities in tackling these problems. Konbit for Sustainable Development, or KSD, is an organization created by USM students to bring awareness to environmental problems in the country of Haiti. Konbit is a Haitian Creole word which means “to come together/to work together”, and it perfectly signifies our group’s goals of working with the people of Haiti.

Methods and Materials

During our visit in Haiti in January 2017, we conducted basic water quality testing using a YSI meter and an urban water testing kit. We performed multiple tests in a pond that is used for drinking, laundry, bathing, and watering animals in the remote mountain village of Mahotiere, located in the city of Thomazeau.

Further lab analysis of the samples includes:

- Atomic absorbance spectroscopy of the Copper content of the plant material found growing along the edge of the pond
- X Ray Fluorescence analysis of the sediment from pond using the bench top method (Thermo Niton XL3T), after the sediment was dried in a 56 degree oven for 24 hours.



Figure 2. Testing the poor water quality in a remote village in Mahotiere



Figure 3. Burning waste in the streets of Port-Au-Prince



Figure 4. A representation of the term “Konbit” - a collective work group where community comes together

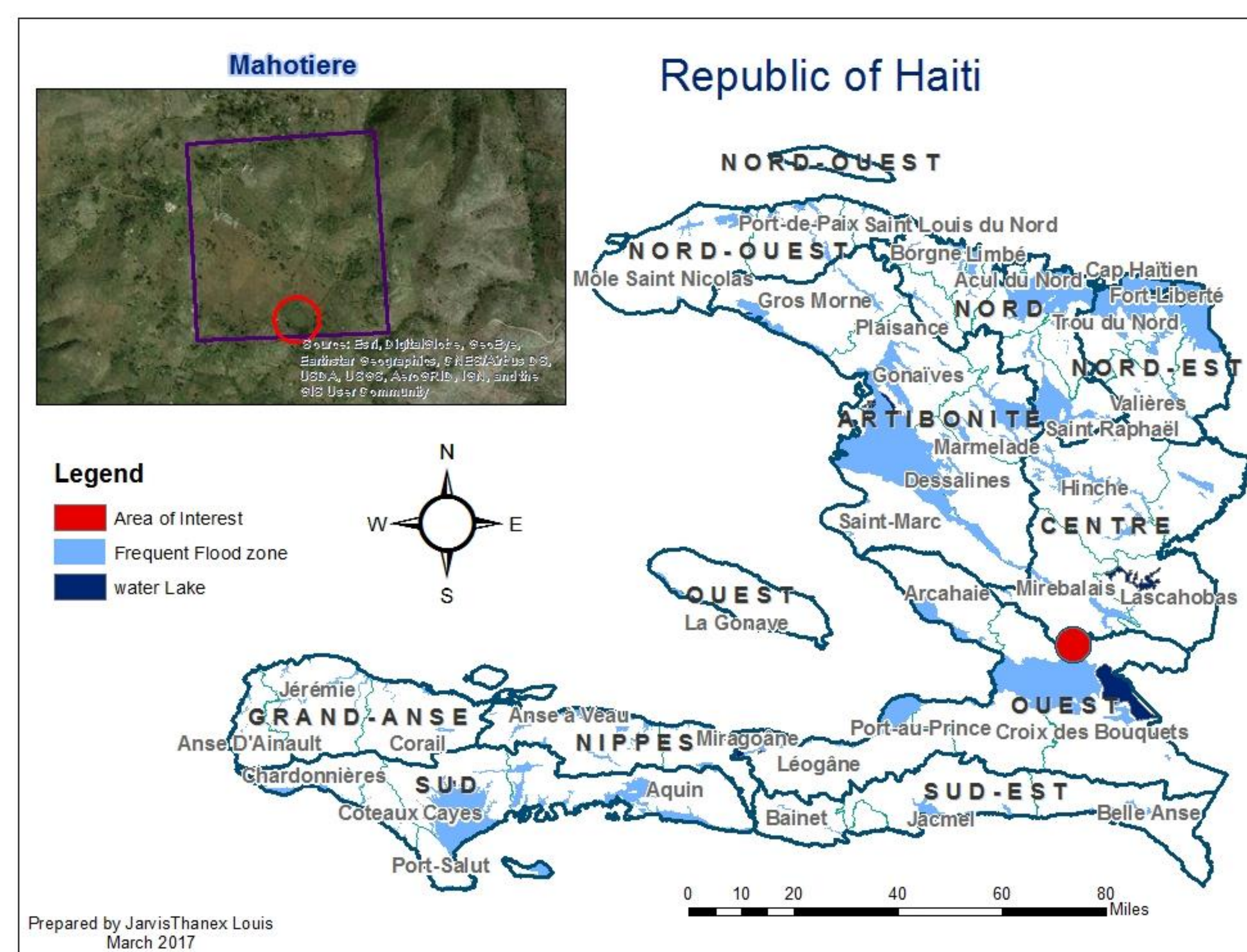


Figure 1. Map of Haiti and the site location for the project



Fig.5 The images above are part of our outreach activities on a radio station talking environmental issues in Haiti.

Results

The results of the testing demonstrated that the water, even in the mountains, was turbid, with high levels of heavy metals.

Secchi Disk: 16.2 cm with sediment clinging to the inside of the tube, indicating high turbidity.

pH: between 7 - 8, indicating normal to slightly basic. (Note: the geology of the surrounding area was made up of primarily limestone)

Nitrates: 5 - 20 ppm

Phosphates: 2 ppm

Iron: 7 ppm

Copper: between 0 - 1.5 ppm

- Results of the AA copper analysis of the plant specimen was 0.2172 ppm copper, indicating a small amount of uptake in the plant.

XRF analysis results:

- Copper: presence
- Iron: 83339.21 ppm (or mg/L). This amount is toxic to organisms.

Discussion

Water quality in Haiti has been one of the most significant challenges for the Haitian population and a large portion of the population does not have access to clean water. Due to issues such as deforestation for fuelwood and production of charcoal which contribute to the destruction of the topsoil, the country has become more vulnerable and unable to respond to the needs of the population. With consistent increases in the population, environmental and sustainable development in Haiti remains a major challenge. Lack of infrastructure and regulations remain the primary obstacle of environmental sustainability. However, the Haitian people remain positive, expressing the desire to work together to solve these issues.

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Contact

We are planning on returning to Haiti to continue working on water and soil testing along with education about these issues in Haiti. If you are interested in becoming involved with us, please contact us at Konbit.sd@gmail.com

References

Analytical Methods for Atomic Absorbance Spectrophotometry” by Perkins-Elmer Corp